PATENT ABSTRACTS OF JAPAN

(11)Publication number : 06-127542

(43)Date of publication of application : 10.05.1994

(51)Int.Cl. B65D 1/02
B29C 49/08
B29C 55/12
// B29L 22:00

(21)Application number : 04-305013

(22)Date of filing : 16.10.1992

(71)Applicant : DAINIPPON PRINTING CO LTD

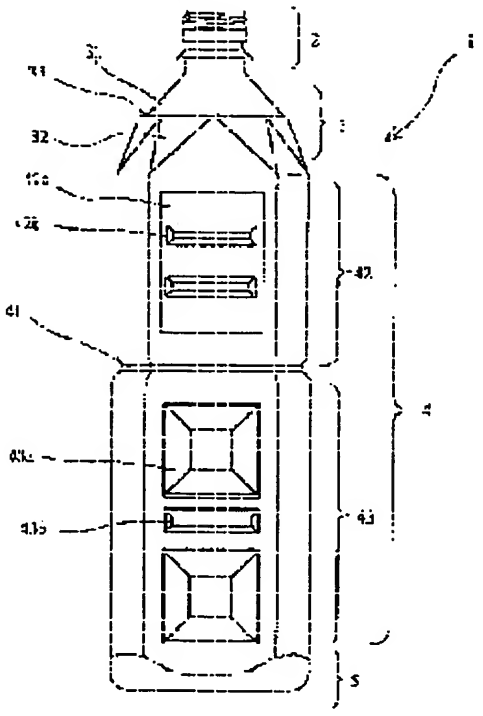
(72)Inventor : KAMEUMI YUUJI

(54) LARGE SIZED BIAXIAL ORIENTED BLOW MOLDED CONTAINER

(57)Abstract:

PURPOSE: To improve strength of a shoulder by providing a stage on a shoulder of a container and forming a part from the shoulder to a body in a polyhedron shape comprising triangular panels.

CONSTITUTION: A biaxial oriented blow molded container 1 integrally formed by blow molding using plastic such as polyethylene terephthalate comprises a mouth 2, a shoulder 3, a body 4 and a bottom 5. In this biaxial oriented blow molded container 1, the shoulder 3 has a cone shaped part 31 smoothly continuing from the mouth 2 and a polyhedron shaped part 32 comprising triangular panels from a lower part of the cone shaped part 31 to the body 4, while a stage 33 is formed at a border between the cone shaped part 31 and the polyhedron shaped part 32. By thus having the cone shape continuously changed into the polyhedron shape, strength of the shoulder 3 can be largely improved for its thickness. In addition the stage 33 can improve the strength of the shoulder 3.



* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1]Regio oralis.
A shoulder, a drum section, and a pars basilaris ossis occipitalis.
A conical shape part which it is the large-sized biaxial-stretching-blow-molding container provided with the above, and a shoulder of said container follows smoothly from regio oralis, It consists of a step which is a boundary part of a polyhedral form part which consists of a panel of a triangle which follows a drum section from a lower part of said conical shape part, and said conical shape part and said polyhedral form part.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]Especially this invention relates to the large-sized biaxial-stretching-blow-molding container which raised the intensity of the shoulder about a large-sized biaxial-stretching-blow-molding container.
[0002]
[Description of the Prior Art]The biaxial-stretching-blow-molding bottle which consists of saturated polyester resin etc. which are represented with polyethylene terephthalate has the extremely outstanding transparency and surface gloss, and it is beautiful and it is excellent in gas barrier property, moisture impermeableness, contents-proof nature, preservability, etc. It has many advantages, such as there being also little generation of heat at the time of combustion, and not frying an incinerator. Therefore, it is widely used for the container (bottle) of various drinking water, a seasoning, an alcoholic beverage, and other food grades, etc.
[0003]Since this kind of bottle has a lightweight and big mechanical strength, it is in good order for using it as a large-sized bottle, and, these days, has been put in practical use also as a large-sized bottle in which inner capacity exceeds 1 l. far.
[0004]However, such a large-sized container receives influences of various external force, such as change etc. of the container internal pressure accompanying the weight of contents, external force, hot fill which take at the time of conveyance of the container with which it filled up, etc.
[0005]Although the panel structure for decompression-proof or turgor-proof is provided in a drum section or the pars basilaris ossis occipitalis is strengthened as various shape to such external force, Since there is much restriction and the shoulder of a bottle is difficult for thickness to become thin easily moreover, and also to give sufficient draw magnification like a drum section even though it establishes reinforcing structure, there is a problem that it is

insufficient in intensity.

[0006]Therefore, the purpose of this invention is to provide the large-sized biaxial-stretching-blow-molding container which raised the intensity of the shoulder.

[0007]

[Means for Solving the Problem]While this invention persons provided a step in a shoulder of a container wholeheartedly in view of the above-mentioned purpose as a result of research, when making from there to a drum section into polyhedral form which consists of a triangular panel, it found out that intensity of a shoulder could be raised substantially and thought out to this invention.

[0008]That is, a biaxial-stretching-blow-molding container of a square shape of this invention which consists of regio oralis, a shoulder, a drum section, and a pars basilaris ossis occipitalis comprises the following:

A conical shape part which a shoulder follows smoothly from regio oralis.

A polyhedral form part which consists of a panel of a triangle which follows a drum section from a lower part of said conical shape part.

A step which is a boundary part of said conical shape part and said polyhedral form part.

[0009]

[Example(s) and Function]This invention is explained in detail below. Drawing 1 is a front view showing the large-sized biaxial-stretching-blow-molding container by one example of this invention. In this example, the biaxial-stretching-blow-molding container 1 formed in one of blow molding using plastics, such as polyethylene terephthalate, It consists of the regio oralis 2, the shoulder 3, the drum section 4, and the pars basilaris ossis occipitalis 5, and the regio oralis 2, the drum section 4, and the pars basilaris ossis occipitalis 5 can be made into the same various shape not only as the thing of this example but the conventional biaxial-stretching-blow-molding container.

[0010]In this biaxial-stretching-blow-molding container, the shoulder 3, From the regio oralis 2, it has the polyhedral form part 32 which consists of a panel of the triangle which follows the conical shape part 31 which continued smoothly, and a drum section from the lower part of the conical shape part 31, and the step 33 is formed in the boundary part of this conical shape part 31 and the polyhedral form part 32.

[0011]The top view of such a container is shown in drawing 2. In drawing 2, it is formed so that the polyhedral form part 32 which consists of a triangular panel may enclose the conical shape part 31, and the step 33 is formed in the octagon by the boundary part of this conical shape part 31 and the polyhedral form part 32. The shape of the step 33 does not need to be an octagon like this example, and can be made into various polygonal shape. The polyhedral form part 32 consists of the panel 32a of the triangle which shares one side with the step 33 of the

above-mentioned octagon, and the panels 32b and 32c of the triangle which reaches the vertical angle of an octagon.

[0012]Thus, by making it shift to polyhedral form continuously from conical shape, the intensity can be substantially raised to the thickness of a shoulder. The conical shape part 31 and the polyhedral form part 32 are formed, when considering it as the structure which these connected, it is formed as that boundary part, but as for the step 33, this invention persons' research showed that this step also contributed to improvement in the intensity of a shoulder.

[0013]in addition -- the drum section 4 -- this example -- like -- the -- the transverse rib 41 is mostly formed in the center in the hoop direction.

It is preferred for a drum section to be divided into the upper portion 42 and the lower part 43, to make an upper portion decompression-proof and turgor-proof structure, and to make the lower part into turgor-proof structure by this transverse rib 41.

The shallow crevice 42a which has the flat bottom is specifically formed in the upper portion 42, and the two transverse ribs 42b are formed into it, and to the lower part 43. It is preferred that the two crevices 43a of the truncated pyramid shape gently gone down to the method of the inside of a container are formed, and the crevice 43b of the shape of a truncated pyramid which has the oblong bottom with narrow width for strengthening of the lower part is formed among both.

[0014]By making the drum section 4 into such shape, the upper portion 42 absorbs a part for the pressure, when it responds to the bulge pressure in a container, or decompression and the whole crevice 42a surface expands or contracts. And since reaction force grows by the transverse rib 42b for reinforcement, it bulges or reduces more than needed, and the effect in which a container does not carry out plastic deformation is demonstrated. With packing in a container, if bulge pressure is applied to the lower part 43, although a ridge part and the crevice 43a of the truncated pyramid shape of two pieces tend to be used as a slant surface part and the lower part 43 whole tends to bulge them, the lower part 43 the oblong crevice 43b, Since the lower part is formed considering the big truncated pyramid shape gone down to the method of the inside of loose ****** as the principal part, big reaction force is demonstrated to bulge. For this reason, the lower part of a container demonstrates the effect not bulging.

[0015]In this example, what is necessary is just to set up suitably the area rate of the shallow crevice 42a which has the flat bottom of an upper portion according to the size of the decompression made to absorb and turgor, and the number of the transverse ribs 42b does not need to be two like this example, and can be suitably set as a container according to the intensity made grant. The number of the crevices 43a of the truncated pyramid shape of the lower part does not need to be two like this example, and can be suitably set up according to the intensity given to a container.

[0016]As explained above, since from there to the drum section is made into the polyhedral

form which consists of a triangular panel while providing a step in the shoulder of a container, with the container of this invention, the intensity of a shoulder is improving substantially.
[0017]Although the biaxial-stretching-blow-molding container of this invention was explained with reference to the accompanying drawing above, this invention can perform various modification, without being limited to this, unless it deviates from the thought of this invention. for example, the shape of the drum section hoop direction of a bottle -- this example -- like -- square (what cuted off the corner the corners is included) not only -- it may be a rectangle, other polygons, etc., and the step does not need to be an octagon and may be a hexagon and other polygonal shape.
[0018]
[Effect of the Invention]As explained in full detail above, while providing a step in the shoulder of a container, from there to the drum section is made into the polyhedral form which consists of a triangular panel by this invention.
Therefore, the intensity of a shoulder is improving substantially.

[0019]Such a biaxial-stretching-blow-molding container of this invention is suitable for especially the container that gives hot fill.

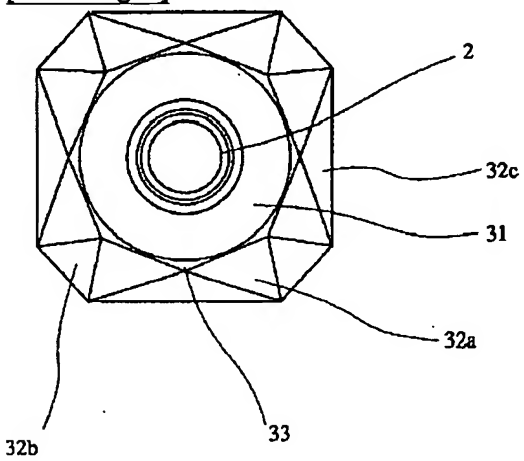
[Translation done.]

* NOTICES *

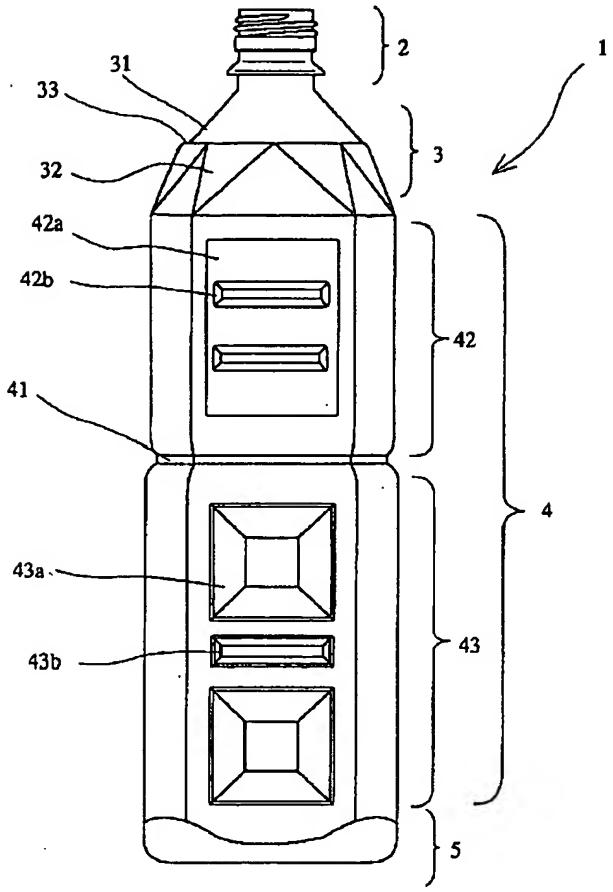
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 2]



[Drawing 1]



[Translation done.]